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WATER QUALITY MANAGEMENT BY THE BLM ON NATIONAL RESOURCE LANDS IN UTAH

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WATER QUALITY MANAGEMENT BY THE BLM, ON NATIONAL RESOURCE LANDS IN UTAH

Introduction

The environmental effects of water projects and water use are receiving increasing attention in the press, in Congress, and in the courts (2). Stream channelization, agricultural demands, flood control, and major industrial water uses for power plants and energy development projects are but a few examples of water uses that occur on public lands, especially those administered by the U.S. Bureau of Land Management (BLM) in the West.

As an agency of the U.S. Department of the Interior, the BLM has the responsibility of managing a considerable portion of the nation's renewable and non-renewable resources. This is significant since the BLM manages about 450 million acres of national resource lands, including Alaska, with an estimated surface runoff of approximately six million acre feet per year. Utah is one of four western states in which the federal government administers over 60% of the land mass. In Utah's case, 73% of the land is in Federal ownership, with the BLM managing about 43% of the land or 22 million acres. It is estimated that runoff totals about 332 thousand acre feet per year on national resource lands in Utah (4).

[illegible] Utah

Water resources, both quantity and quality, are a key factor in the management of all resources, both terrestrial and aquatic, on

national resource lands, and is rapidly becoming a major determinant in the assessment of resource management alternatives, particularly those associated with energy developments. It is worthwhile to note that BLM in Utah manages riparian habitats associated with some 2,000 miles of streams, and 15,000 acres of lakes, reservoirs, or ponds. While many of these water bodies contain unsuitable habitats for a game fisheries, some are quality fishing waters, with a few stream miles classified as a "Blue Ribbon Fishery" by the Utah State Division of Wildlife Resources, and all contain water resources, the quality of which provides a beneficial downstream use, whether it is for human consumption, fish and wildlife, or recreation-aesthetics.

I have used these figures to give you some idea as to the magnitude of the water resources and potential management problems on national resource lands administered by the BLM in Utah. With this in mind, let us look at BLM's role in water quality management, past - present - and future, and define areas of problem management which we foresee developing in the near future as a result of increased emphasis on energy developments. I will try to summarize by showing a few representative slides of our activities and problem areas.

Water Quality Management

Water quality management on national resource lands in Utah was delegated a rather low priority for accomplishment by BLM until about two

national resource lands, and is rapidly becoming a major determinant in the assessment of resource management alternatives, particularly those associated with energy development. It is worthwhile to note that BLM in Utah manages riparian habitats associated with some 2,000 miles of streams, and 13,000 acres of lakes, reservoirs, or ponds. While many of these water bodies contain undesirable habitats for a game fisheries, many are quality fishing waters, with a few stream miles classified as a "Blue Ribbon Fishery" by the Utah State Division of Wildlife Resources, and all contain water resources, the quality of which provides a beneficial downstream use, whether it is for human consumption, fish and wildlife, or recreation-aesthetics.

I have used these figures to give you some idea as to the magnitude of the water resources and potential management problems on multiple resource-lands administered by the BLM in Utah. With this in mind, let me look at BLM's role in water quality management, past - present - and future, and define areas of problem management which we foresee developing in the near future as a result of increased emphasis on energy development. I will try to accomplish by showing a few representative slides of our activities and problem areas.

Water Quality Management

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years ago. Up until that time, water resource inventories and quality analysis were conducted rather sparsely, and then only on important waters identified within our planning system. Most water resource data was supplied to us via the U.S. Geological Survey from permanent and temporary gauging stations. While one-time samples, or grab samples, were collected on some waters as the need arose, most perennial waters on small streams (those with a minimum summer low flow of less than 5 cubic feet per second) were deemed rather insignificant by state and federal agencies. As a result, most of these waters had little, if any, baseline inventory data relative to water quality and quantity, fisheries or habitat components.

The need to obtain the necessary baseline water resources inventory data for planning and management responsibilities led us to take a second look at water quality requirements. Internal discussions on this subject pointed out that water quality monitoring was not a new program within BLM, but a very real, existing one. While somewhat neglected in the past, collections of water resources and quality data now are a must for all our resource programs. Water quality relationships exist with all our on-going programs, especially as related to soil and watersheds, energy and minerals, wildlife habitat, grazing systems, and recreation programs.

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In what ways are we actively engaged in water quality work at present? We are coordinating with state, federal and private agencies in the development and implementation of a viable water quality monitoring program for waters on national resource lands within our eight district office areas.

The need for inventory data for the Westwide Water Study led us to initiate a survey of consumptive water requirements for the various natural resource operations on national resource lands (3). Individual resource areas within each of our districts were evaluated in terms of activities and acre-feet of water needed for their operation. Consideration was given to the non-consumptive water needs for fisheries, wildlife, recreation and water quality. This baseline inventory was completed in March, 1974, and forms a part of the Western U.S. Water Plan Working Document.

We are still engaged in obtaining water quality and minimum flow data on all aquatic habitats now as part of our aquatic habitat surveys. These data are actively utilized in our basic planning documents, as well as in Environmental Impact Reports and Statements.

The recent demand for energy exploration and development has increased our awareness for quality water resource data. Water resources flowing

through national resources lands are playing a significant role in the exploration and development of energy resources, such as coal, oil shale, oil and gas, bituminous sands, and geothermal steam. The need for active pre- and post- water monitoring programs to establish water quality characteristics at project sites has been shown to be beneficial time and again throughout the nation to assess environment impacts associated with a project to provide for protection of the downstream water and habitat resources.

The Federal Water Pollution Control Act and Executive Order 11752 specifies that any federal agency responsible for an activity which may result in the discharge or runoff of pollutants shall comply with Federal, State and local requirements respecting control and abatement of pollution to the same extent that any person is subject to such requirements. We have taken immediate action to comply with these laws, especially in energy development areas.

In the White River oil shale area, in northeastern Utah, where the two 5,000 acre lease tracts are located, the BLM began to monitor water quality on a scheduled basis one year before leasing in cooperation with the Utah State Division of Health, and the U.S. Geological Survey. As a part of the lease stipulations on these oil shale tracts, it is specified that baseline resource data, including water quality, be monitored for a two-year period prior to any development. Because of

the value of water resources and their use in monitoring the environmental impacts of energy developments, this requirement for two years' baseline data on water quality may become a standard stipulation in the leases for significant environmental actions, such as oil shale, coal, and bituminous sand tracts, as well as major power plant developments.

As part of the Bureau's EMRIA program (which means Energy Minerals Resource Inventory Analysis), the BLM is cooperating with the U.S. Geological Survey in an intensive hydrologic study in the potential oil shale development area encompassing 3,000 square miles within the Uinta Basin of east central Utah. Water quality sampling will be conducted at a total of 31 sites, including both partial and continuous recording stations within this area.

Also included in the EMRIA program is hydrologic data collection in potential coal development areas. Water quality measurements include physical, chemical and radiological constituents of surface and ground waters. In order to determine the reclamation potential of representative coal lands after mining, and to specifically estimate the effects on the local hydrologic system from coal mining and the reclamation of land after mining has been completed, the Bureau selected four pilot areas for study in known coal fields. In Utah, a 2,600 acre tract has been selected in the Alton Coal Field, northeast of Kanab, Utah. This study area is within a 27,000 acre tract of strippable

coal presently under lease for development. The U.S. Geological Survey and the Bureau of Reclamation are cooperating with the BLM in the soil, water, vegetative and mineral studies within this area.

A total of about 27,000 square miles of color infrared aerial photography was flown in 1974 in the potential oil shale and coal development areas to aid us in field investigations and study. Approximately 12,000 square miles is scheduled to be flown in 1975 with color infrared aerial photography.

While all land management activities have and probably will continue to have some impact, although minimized, on the water quality resources, the most significant and subtle impact degrading water quality is from the domestic grazing of animals. The elimination of riparian vegetation causing stream bank deterioration and erosion have significantly degraded water quality values on the site as well as in downstream areas. The biological productivity of some stream areas has been affected and, in many cases, greatly reduced, through continued grazing uses. The BLM has and is continuing to evaluate grazing systems and make adjustments in use for the protection, enhancement and management of riparian habitat areas. In some test cases, total exclusion of grazing has been implemented in areas where either quality habitat exists, threatened or endangered species occur, or inadequate vegetative composition occurs to sustain grazing uses.

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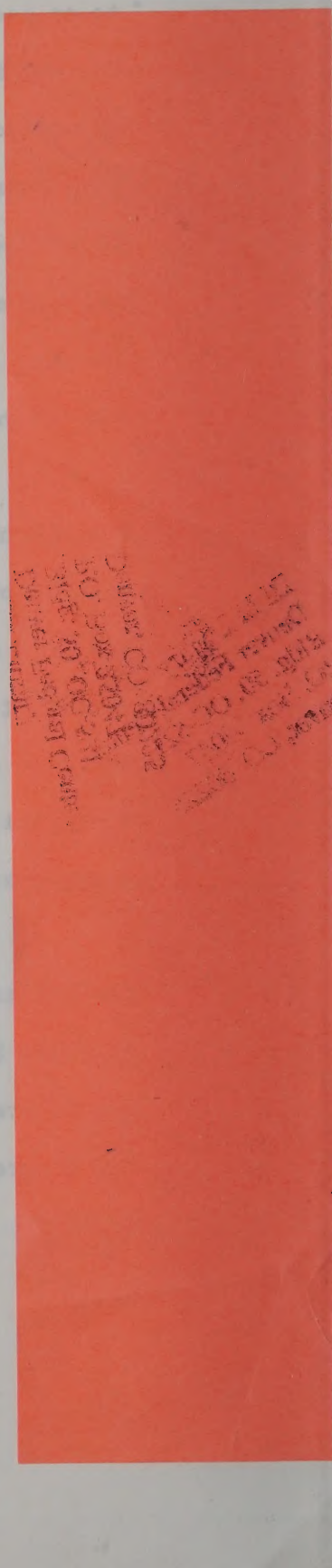
While multiple-use management systems appear to be best for the resources in theory, actual applications of such use can be detrimental to an ecosystem if a series of checks and balances, or alternatives, are not built into the system. Dr. A. Starker Leopold, University of California, Berkeley, in an address titled "Ecosystem Deterioration Under Multiple Use", given at the Wild Trout Management Symposium in Yellowstone National Park in 1974, stressed the impacts of livestock grazing to the aquatic ecosystem, and challenged resource managers to evaluate the problem and take action, where necessary, for the benefit of all land and water resources (1).

The BLM has been conducting water quality surveys on waters specifically oriented to grazing use where deteriorating conditions are known to exist. These studies will be continued and expanded in 1975. It is hoped the use of water quality data along with physical habitat, and biological data, especially stream macroinvertebrate fauna, will provide the needed information on which to base sound management decisions to arrest the decline of aquatic ecosystems.

Another area the BLM has been active in during 1974 has been the Colorado River Salinity Control Program. Contract studies to State and Federal agencies are providing us the needed information for soil and watershed management. Utah State University is providing us with



information on the effects of land uses on salts movements for selected land and vegetative types in the Price River Basin. The Bureau of Reclamation is preparing maps for us outlining soil, salinity, and vegetative characteristics in the upper Colorado River Basin, while the U.S. Geological Survey is providing us with data and analysis on water quality-salinity relationships within the San Rafael River Basin and the Pariette Wash area.

What does the future hold for the BLM in water quality management? We plan to increase emphasis in water quality monitoring on natural resource lands in cooperation with federal, state and local water agencies. Technological advances in computer sciences and water quality monitoring, such as a remote sensing data collection platform used in conjunction with a satellite, will greatly enhance our capability to identify problems to protect water quality and values in energy development areas, particularly oil shale and coal lease tracts.

We are hopeful of passage of an Organic Act by the Congress which will give BLM management and enforcement authorities to adequately manage its resources for the American publics. As it is now, BLM responsibilities and authorities derive from an assemblage of about 3,000 laws and regulations, some of which are vague and hinder the management of land and water resources.

If I may summarize several points that I mentioned earlier, we are beset by a number of increasing demands on the use of water resources, chiefly from energy developments, as well as our on-going programs in recreation, grazing and watershed management.

The following transparencies will serve to illustrate some of the problems associated with these demands. Energy exploration, such as oil drilling (SLIDE) activities can cause environmental impacts on water quality. Here waste water from core drilling results in surface erosion (SLIDE), and residues of drilling mud when the water evaporates. Waste water ponds (SLIDE) and springs created as a result of core drilling, and not properly cared for, can cause death from water contamination for livestock and wildlife. Oil spills (SLIDE) are becoming more frequent and can cause significant destruction.

to the aquatic ecosystem (SLIDE) on small, but important, streams on national resource lands. Burning (SLIDE) is one efficient means of cleaning up oil spills, but it is aesthetically displeasing and it also leads to increased erosion (SLIDE) and sedimentation into waters from resulting unstabilized soil conditions.

Coal mining activities (SLIDE) and resulting waste piles adjacent to stream courses cause degradation of water quality, and in smaller streams like this, the elimination of its biotic productivity. Water and wastes (SLIDE) from gilsonite mines can have similar impacts on the aquatic ecosystem.

Increased recreational use of major waterways (SLIDE) for floatboat use increases the likelihood of pollution on many remote waters previously unused by visitors. Fishing and water-related activities (SLIDE) on water bodies without adequate sanitation facilities and campgrounds (SLIDE) is causing increased pollution and management headaches for the BLM manager. The most subtle impact (SLIDE) on water quality is occurring from domestic grazing animals, particularly livestock. The elimination of riparian vegetation, bank trampling, and the resulting erosion (SLIDE) is causing on-site as well as downstream water quality degradation.

We estimate that about 70 percent of the aquatic habitats, and associated water qualities, are in unsatisfactory condition on

national resource lands in Utah. However, with adequate planning and on-the-ground surveys and management (SLIDE) the BLM is providing for the protection and enhancement of water quality resources (SLIDE) for the public's future use.

Thank you for your attention. If you have any questions, I will attempt to answer them.

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